

## RISKY BUSINESS

### The Generous Helping of Company-Specific Risk That May Already Be Included in Your Size Premium

By Ted Israel, CPA/ABV/CFF, CVA

A potential exists for valuation analysts to overestimate the company-specific risk premium when valuing small businesses. For purposes of this discussion, company-specific risk and unsystematic risk are used interchangeably. "Small business" is defined as any company that is comparable (or smaller) in size to the companies included in Ibbotson's decile 10z (market capitalization up to \$85 million) or Duff & Phelps LLC's portfolio 25 (average market capitalization of \$68 million). Details of data published by both Ibbotson and Duff & Phelps LLC are discussed later.

If the analyst is valuing a small company and the estimated cost of capital includes a size risk premium provided by one of the above sources, then the incremental premium to address the unsystematic risk posed by the company is very small, if not unnecessary. The reason for this conclusion is the makeup of the companies that compose the smallest deciles or portfolios of size compiled by these data providers: i.e., risky companies.

Let's briefly review cost of capital theory. Under the buildup model, the cost of equity capital is estimated as follows:

$$E(R_i) = R_f + RP_m + RPs \pm RP_i \pm RP_u$$

where:

- E(R<sub>i</sub>) = Expected rate of return of subject
- R<sub>f</sub> = Risk free rate of return
- RP<sub>m</sub> = Risk premium of the market (aka equity risk premium or ERP)
- RPs = Size premium
- RP<sub>i</sub> = Industry risk premium
- RP<sub>u</sub> = Company-specific (aka unsystematic) risk premium

Under the modified capital asset pricing model ("modified CAPM"), the cost of equity capital is estimated as follows:

$$E(R_i) = R_f + \beta(RP_m) + RPs \pm RP_u$$

where:

- E(R<sub>i</sub>) = Expected rate of return of subject
- R<sub>f</sub> = Risk free rate of return
- β = Beta
- RP<sub>m</sub> = Risk premium of the market (aka Equity Risk Premium or ERP)
- RPs = Size premium
- RP<sub>u</sub> = Company-specific (aka unsystematic) risk premium

It is noteworthy that both of these models are designed to accommodate adjustment for company-specific (or unsystematic) risk, which makes sense. Both models attempt to synthesize a cost of equity capital for a single private company based on data from a large population of large

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publicly traded companies. The underlying economic theory is that an investor in the market as a whole can avoid unsystematic risk through diversification. The investor in the subject company cannot diversify away the subject company's unsystematic (or specific) risk. Fair enough. Now, how do we quantify the company-specific risk?

Estimation of company-specific risk has been a challenge right back to the day the concept was introduced. Unlike the other components of the cost of capital (e.g., the risk-free rate and the equity risk premium), there is no source of empirical evidence. You could not look at the last page of Ibbotson's *SBB* Yearbook to obtain a specific number. The valuation profession's thought leaders made earnest attempts at developing sound, defensible methodologies to quantify this risk. Most took the form of lengthy questionnaires, score sheets, or elaborate matrices focused on the company's unique combination of internal and external strengths and weaknesses. Most also depend on the valuation analyst to somehow convert qualitative commentary into a quantitative measure. Below is a list of areas where small private companies may experience increased risk as compared to their large publicly traded counterparts.<sup>1</sup> The list is not complete and is for illustration only.

- Small company
- Management depth
- Access to capital
- Customer concentration
- Customer pricing leverage
- Product or service diversification
- Geographical distribution
- Volatility of earnings or cash flow
- Technology life cycle
- Potential new competitors
- Life cycle of current product or services
- Availability of labor

1 James R. Hichner and Paul J. Vogt, "Cost of capital controversies: It's time to look behind the curtain" (Part 3 of 3), *Shannon Pratt's Business Valuation Update*, May 2005

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If a small private company is deficient in a substantial number of the above attributes, then it is riskier, and, accordingly, it must offer a higher rate of return in order to attract investment. It makes perfect sense, but how does the analyst quantify the discrete increment to the cost of capital to compensate for the risk(s) posed by the above? For the most part, judgmentally. Most of the lists like the one appearing above are incorporated into a “score sheet” that requires the valuation analyst to somehow assign numeric values to the conditions (i.e., +1 for lack of professional management, +.5 for lack of product diversification, etc.). Some analysts advocate just entering “+,” “-,” and “N/A” in the body of the score sheet and then entering their estimate of the company-specific risk at the bottom. These analysts believe this somehow makes them appear less arbitrary. In other words, avoid the appearance of trying to bring a level of precision that just does not exist. That is wise, but we are still dealing with a guess. Before moving on, I will mention that in his book *Value Maps*, Warren Miller presents the highly structured approach he developed that delivers up an estimate of company-specific risk but only after a rigorous study of the subject company’s management, operations, and economic position. Miller’s process is credible because it does have some empirical underpinnings. It is worth looking at, but it is beyond the scope of this discussion.

To summarize the above, private companies have a number of potentially negative attributes that may make them riskier than public companies. However, these attributes must be subjectively evaluated. There are other problems beyond subjectivity. There is tremendous exposure to overestimating the cost of capital due to double-counting overlapping risks.

Look at the very first attribute on the list: “small company.” If the analyst plans to factor a size premium into his or her cost of capital estimate, size should not be subjectively factored in again as part of company-specific risk. Take a good look at the rest of the list. Are not those factors the very attributes that generally define small companies? A little further on, we will examine some of the evidence that publicly traded small

companies are also very likely to be deficient in these areas.

Valuation using the income approach involves a numerator (some measure of income) divided by a denominator (some estimate of the cost of capital). Valuation analysts frequently lose sight of how the attributes on the above list affect the numerator of the foregoing capitalization equation. In other words, the effects of unsophisticated management, insufficient or nonexistent R&D, inability to price compete, inability to economically purchase raw materials, inability to attract the best talent, etc., already have a direct effect on the value of the company because its profitability suffers. There may be little need to beef up the denominator of the capitalization equation for company-specific risk. This is because the numerator (income) is already impacted by such factors. Based on this premise, much of a company’s specific risk is already “baked into” the company’s earnings figures.

Some of the negative attributes listed above will also contribute to a company’s flat or meager growth rate. A low or nonexistent long-term growth rate negatively affects a company’s value under the income approach. Accordingly, selection of a low growth rate may reduce or eliminate the need to separately address the company’s weak marketing program, lack of R&D, or stifling local competition in its company-specific risk.

Shannon Pratt has said, “I believe that, in most situations, much of what is listed among the specific company risk factor is captured in the size premium, so the specific company risk would rarely rise to five percent.”<sup>2</sup> This discussion supports Dr. Pratt. In addition, for the smallest companies (i.e., Ibbotson’s decile 10z), a case can be made that company-specific risk as a separate component of the cost of capital may not rise above zero in many instances.

The beginning of this discussion mentioned size premiums provided by Morningstar/Ibbotson and Duff & Phelps. Morningstar’s *Ibbotson SBI*

<sup>2</sup> Preamble to article cited above.

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*2011 Valuation Yearbook*<sup>3</sup> provides equity risk premiums for 10 size deciles based on companies' market capitalizations. This publication disaggregates the 10th decile further into 10a and 10b. Deciles 10a and 10b are broken down even further into 10w and x and 10y and z, respectively. There are 990 companies in decile 10z. The market capitalizations range from \$1.2 million to \$85 million. That's quite a spread. The next decile up (10y) has 304 companies with market capitalizations ranging from \$85 million to \$143 million. Decile 10z is representative of the bulk of the author's valuation practice.

The size premium in excess of CAPM (RPs in our equation) for decile 10z is 12.06%. That is over and above the risk-free rate (Rf) and the equity risk premium of the market (RPM). For comparison, Decile 10x (market capitalizations of \$143 to 179 million) exhibits a 4.96% premium. That is a significant difference.

So what makes the small companies so risky? Roger Grabowski frequently muses, "Are they risky because they are small, or small because they are risky?" It is not written anywhere that these companies cannot suffer some of the weaknesses listed above for our small private companies just because they are publicly traded. Further analysis of Ibbotson's lower deciles is revealing. "Morningstar includes all companies with no exclusion of speculative (e.g., start-up companies) or distressed companies whose market capitalization is small because they are speculative or distressed,"<sup>4</sup>Pratt and Grabowski add.

Further, "Decile 10y is populated by many large (measured by total assets) but highly leveraged companies with small market capitalizations that probably do not match the characteristics of financially healthy but small companies. There are companies with no sales included in the data (e.g., speculative start-ups)," as well as "stocks of the troubled companies included in the data (companies with negative returns on the latest

fiscal year book value) . . ."<sup>5</sup>There are extremely risky companies included in deciles 10y and 10z. In many instances, such companies may be more risky than the small private company that is the subject of the typical business valuation.

Let's turn our attention to the Duff & Phelps data. Annually, Duff & Phelps LLC publishes its *Risk Premium Report*. The report provides a measure of the equity risk premium by ranking companies into 25 size portfolios, based on eight different definitions of size as follows<sup>6</sup>:

- Market value of common equity (similar to Morningstar/Ibbotson);
- Book value of common equity;
- Five-year average net income before extraordinary items;
- Market value of invested capital;
- Total assets (at book value);
- Five-year average EBITDA;
- Sales; and
- Number of employees.

Accordingly, valuation analysts can benchmark the subject company without having to already estimate the market value of its equity. Some analysts consider that to be a significant advantage over the Morningstar/Ibbotson size data. Duff & Phelps also screens out the following:

- Companies lacking five years of publicly traded price history;
- Companies with sales below \$1 million in any of the previous five fiscal years;

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<sup>3</sup> Ibbotson *SBI 2011 Valuation Yearbook*, Morningstar.

<sup>4</sup> Pratt and Grabowski, Chapter 14, *Cost of Capital*, 4th Ed., Wiley 2010.

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<sup>5</sup> Ibid.

<sup>6</sup> *Duff & Phelps LLC Risk Premium Report 2011*, Duff & Phelps LLC.

- Companies with negative five-year average EBITDA; and
- Companies not listed on one of the stock exchanges (NYSE, AMEX, or NASDAQ).<sup>7</sup>

By excluding such companies from the basic data, Duff & Phelps hopes to be able to evaluate the effect of size as purely as possible. One other way in which Duff & Phelps differs from Morningstar/Ibbotson is the time series over which they measure the equity risk premium. Morningstar/Ibbotson computes its equity risk premium for the time period 1926 through present. Duff & Phelps uses a time series from 1963 to present. The pros and cons of these two time series are beyond the scope of this discussion. It is simply noteworthy that the two equity risk premium observation periods are different.

Of the eight size definitions used by Duff & Phelps, the author gravitates toward sales. Although this preference may be intuitive, the author believes that many valuation analysts benchmark companies according to sales.

Exhibit A-7 of the *2011 Duff & Phelps Risk Premium Report* reflects “Companies Ranked by Sales.” Portfolio 25 is made up of 390 companies with average sales of \$117 million. The smoothed average risk premium of portfolio 25 is 12.37%. As cited above, Morningstar/Ibbotson’s size premium for decile 10z is 12.06%. The two are not directly comparable. Morningstar/Ibbotson’s is strictly a size premium (RPs). Duff and Phelps’s is equity risk premium and size premium combined (RPM+s). Several other factors contribute to a lack of comparability. Probably the most significant is the Duff & Phelps exclusion of the highly risky companies. Also, as mentioned above, Duff & Phelps calculates its risk premiums over a different time period than Morningstar/Ibbotson. As of the end of 2010, the historical market risk premium from 1963-2010 embedded in the risk premiums reported in the Duff & Phelps report was 4.4%. Morningstar/Ibbotson’s equity risk premium was 6.7%. There is also some difference

in the size of the companies composing decile 10z and portfolio 25. As we noted above, the market capitalizations of companies in decile 10z range from \$1.2 million to \$85 million. Table 1 in *Duff & Phelps 2011 Risk Premium Report* shows that companies in the 5th percentile of portfolio 25 have average equity capitalizations of about \$8 million and in the 95th percentile about \$153 million. On average, decile 10z companies are smaller than portfolio 25 companies. If Morningstar/Ibbotson ranked size by portfolios instead of deciles, 10z would be portfolio 40.

Many valuation analysts are interested in ranking by sales. The sales for companies in the 5th percentile of portfolio 25 average \$17.3 million. The 95th percentile averages \$241.5 million. The 5th percentile is definitely the territory of many valuation engagements. As mentioned above, the smoothed average risk premium of portfolio 25 is 12.37%. Duff & Phelps provides the log data and formula to regress the size premium for a company with average sales between or below their published portfolios. Better still, Duff & Phelps’s new *Calculator* will do it automatically.<sup>8</sup> The author used the *Calculator* to compute the premium for a company with \$5 million in sales. It returned a smoothed equity risk premium (RPM+s) of 15.6%. Duff & Phelps cautions users about regressing for size factors below those included in the portfolio. The lowest percentile of portfolio 25 includes companies with sales averaging \$17.3 million, but it is unknown whether it includes any companies with average sales as low as \$5 million. Therefore, there is a risk that the subject company is not represented by the regression line for portfolio 25.

What do analysts know about the riskiness of the companies in portfolio 25? Exhibit C-7 to the *2011 Duff & Phelps Risk Premium Report* gives some comparative risk characteristics for the 25 size portfolios based on sales. Not surprisingly, the companies in portfolio 25 have the lowest average operating margin (8.76%), the highest average coefficient of variation (“CV”) of operating margin

<sup>7</sup> Ibid.

<sup>8</sup> *Duff & Phelps Risk Premium Calculator 2011*, Duff & Phelps LLC.

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(39.26%), and the highest average CV of return on equity (49.99%). The differences between the portfolios are most dramatic for the CVs of operating margin and return on equity. For example, the next portfolio, 24 (comprising 113 companies with average sales of \$325 million and a smoothed equity risk premium of 11.34%), has CVs of operating margin of 26.72% and return on equity of 36.25%. Those are significant differences. How much of the one point difference in equity risk premium between portfolios 24 and 25 is caused by the increment in the financial variances versus the difference in size? It is not known. What is known is that the companies in portfolio 25 are significantly riskier than the companies in portfolios 1 through 24.

Duff & Phelps also provides the D Exhibits, which rank the companies, not by size, but by the aforementioned measures of risk: average operating margin, average CV of operating margin, and average CV of return on equity. It is instructive to note that, with occasional exceptions, the equity risk premium increases with every increment in financial risk factor. Duff & Phelps encourages analysts to use these data to assist in estimating company-specific risk. In fact, the *Calculator* provides an eloquent discussion of this by comparing the financial risk factors of the subject company with the averages in the subject company's portfolio. At the time of this writing, Duff & Phelps has not yet provided a means to evaluate the effects of the risk factors within a size portfolio ranking. Currently, the size analysis and risk analysis are independent and exclusive of each other.

This discussion summarized the quality and relative risks of companies making up the lower deciles and portfolios of two common data providers. The point is, there is strong evidence that the small publicly traded companies that inhabit Ibbotson's deciles 10y and 10z and Duff & Phelps's portfolio 25 are plagued with many of the same conditions generally associated with small private companies. Companies in portfolio 25 have low and erratic operating margins. Deciles 10y and z include highly leveraged companies, companies without earnings histories and even

companies without sales. Unless one believes these companies just have bad luck, the analyst should consider that their poor (or even lack of ) operating results may be the result of one, some, or all of the deficiencies included in the list above. If a size premium was obtained from one of these proxies, the analyst has already captured a great deal of risk in the estimated cost of capital.

The above discussion also considered the likelihood that many of the subject company's organizational deficiencies have already manifested themselves in that company's lackluster performance (income stream). Combine these two realities and an argument can be made that there is no need to pile on additional risk for challenges that may only be perceived as specific to the subject company.

Does this mean it is never appropriate to apply a company-specific risk premium? Certainly not. However, do not automatically assume that one is necessary when valuing a small private company without professional managers. Many of the small public companies in the lower 10th decile and portfolio 25 show signs that they are not so well managed.

At times, valuation analysts may identify risks that are truly specific to the subject company. Such risks are not included in that illustrative list of deficiencies cited above and likely are not suffered by the majority of companies included in the data sources. How the valuation analyst determines the company-specific risk to address these unique threats will likely be a subjective process. In the alternative, if the risk is so discrete, the analyst may instead elect to address it in the subject's projected cash flow. For example, the subject company is facing the threat of environmental clean-up at its principal site. Rather than trying to estimate how much company-specific risk to apply, the analyst could obtain an estimate of the clean-up cost and its likelihood and then build that cost into the benefit stream to be discounted or capitalized. One benefit of this latter procedure is transparency. Anyone questioning the estimated cost or assessed likelihood of the

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clean-up can determine the effects of differing estimates on the company's value.

The author recognizes that some of the opinions expressed in this discussion may be considered a little extreme. There are also practical limits to what is being espoused. The observations about the risks captured in the size premium apply only to Ibbotson's lower 10th decile and Duff & Phelps's portfolio 25. Once one gets out of the "bargain basement," different rules apply. The author also acknowledges that there is some acceptance to factoring in a negative company-specific risk when dealing with a well-managed private company with strong operating results. However, the above stated opinions make sense within the narrow parameters defined. When relying on the size premium data discussed above

to estimate the cost of capital for the typical small private company, there is little or no need for the analyst to add an additional premium for company-specific risk.

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